



Digital Platforms as Urban Infrastructure?

April 7, 2026

Issue: [Digital Platforms as Urban Infrastructure?](#)

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Within cities, infrastructure holds a paradoxical position as being simultaneously visible and invisible. As discussed in a previous issue of *Urban Matters* by Alvarado and Vegliò (2023), the ontology of urban infrastructure extends beyond an understanding of it as a set of inert, technical objects passively supporting urban life. Rather, there is a growing recognition of infrastructures as active organisers of social relations, shaping the conditions under which urban life unfolds beyond their apparent material forms (Easterling, 2014; Kanoi et al., 2022), conditionally rendering liveability and survival. Attention to infrastructure in cities is also about distributional justice and planning power through the moralities and materials of the time (Star, 1999), specifying the political moment in which they are situated (Hughes, 1983).

This socio-political framing of urban infrastructure becomes especially salient when considering contemporary transitions from the networked city to the smart city and now increasingly toward automated urbanism. Picon (2018) suggests that these shifts mark a transformation in the epistemology and social imagination of urban infrastructure. While infrastructure has long served to support circulation—of goods, bodies, energy, and information—its digital reconfiguration introduces new modes of control, coordination, and delegation. The smart city, introduced as one such infrastructural mode of governance, gestures toward a neo-cybernetic vision of top-down control in which algorithms and human operators jointly steer urban systems (Picon, 2018).

Turning to another model of urban digitalisation, but a more ubiquitous and ordinary one (and indeed more visible in urban everyday life), digital platforms have come to occupy a dominant position and exclusive space in service provision for cities (Wiig and Masucci, 2020). Enabled by real-time data flows and algorithmic coordination, digital platforms (re)organise urban operations (Barns, 2019)—mobility, work, payments, and communication—becoming indispensable to everyday life. Regarding this mediating function, recent debates increasingly assume platforms to constitute a form of urban infrastructure, reflecting a shifted epistemology toward a vision of spontaneous coordination, where individuals are expected to self-organise through ostensibly open digital systems. Others have considered the duality of this role. Plantin et al. (2018), Berfelde and Kluzik (2022), and Frapporti (2024) have reflected on the platformisation of infrastructures and the infrastructuralisation of platforms as a twofold, paradoxical process in which visible and invisible mundane operations increasingly structure urban life in the platform age. Frapporti (2024) insists, however, that platforms and infrastructure are not necessarily the same, since they “differ in scale and scope” (p. 82). In this special issue, we also seek to unsettle the designation of digital platforms as urban infrastructure; rather than assuming equivalence, we raise critical enquiries about accountability, endurance, maintenance and replicability.

Accountability

Despite their uneven distribution and frequent failures, smart city infrastructures are nevertheless articulated through an aspiration to public value and justice, however imperfectly realised (Kitchin, 2015) and anthologically lacking. However, it is precisely this aspiration that distinguishes them from digital platforms, as they operate within private

regimes of ownership, governance, and extraction, even as they provide services that have become infrastructural in effect. Yet, as they increasingly control urban interactions and mediate essential services, they remain unaccountable through what Mark Graham (2020) describes as “a strategic deployment of *conjunctural geographies*—a way of being simultaneously embedded and disembedded from the space-times they mediate.” Such capacity to withdraw, reprice, exclude, or reconfigure access without democratic oversight fundamentally unsettles the public normative commitments historically associated, if unevenly, with infrastructures in an urban setting (Gandy, 2004; Graham and Marvin, 2001). We therefore argue that treating platforms as infrastructure, without interrogating the public governance void, risks normalising the privatisation of urban life and obscuring the political stakes of dependence, care, and collective survival in the platformised city.

This void becomes particularly visible in cases such as Amazon. In the United States and several Global North metropolitan areas, Amazon increasingly presents itself as infrastructure, embedding its cloud services, logistics networks, and delivery systems into the basic functioning of the digital economy and everyday flows of goods. Through AWS and its nationwide logistics apparatus, Amazon has become indispensable to governments, businesses, and households—a status it reinforced by claiming “essential” designation during the COVID-19 pandemic. Yet this infrastructural role remains deeply contested. Unlike public utilities, Amazon is privately governed, profit-driven, and free from obligations of universality, care, or democratic accountability. Its power rests on market dominance rather than public mandate, enabling infrastructural dependence without corresponding responsibility—an arrangement better understood as “infrastructural capture” (Marvin, Mcfarlane, and Rutherford, 2026) than public infrastructure. The debate, then, is not whether Amazon functions infrastructurally—it clearly does—but whether it should be understood as urban infrastructure or, instead, as a form of infrastructural capture, where essential systems of circulation and computation are consolidated under private control without corresponding public obligation.

Maintenance and Care

Canonical urban infrastructures—water, electricity, sewage, transportation, and telecommunications—are not simply technical assemblages but, from the standpoint of political and moral projects (Gandy, 2004), their *universality and continuity* have been “promises of modernity and development” (Anand, Gupta, and Appel, 2018, p. 3), upheld through maintenance and repair, even where these are economically inefficient. Urban infrastructure, in this framework, has been governed by the assumption that withdrawal is illegitimate: deliberate interruption is widely recognised as a political crisis, a violation of collective rights, or an abdication of public responsibility. For example, the state-imposed internet blackout in January 2026 in Iran was widely interpreted as a moment that profoundly collapsed already very fragile state legitimacy. In addition, Picon (2018) argues that the reality of infrastructure lies not only in material networks for continuity but also in stabilised practices of maintenance, standards, regulations, and institutional commitments that sustain them over time. Infrastructure, in this sense, is defined as

much by care and endurance as by circulation and efficiency.

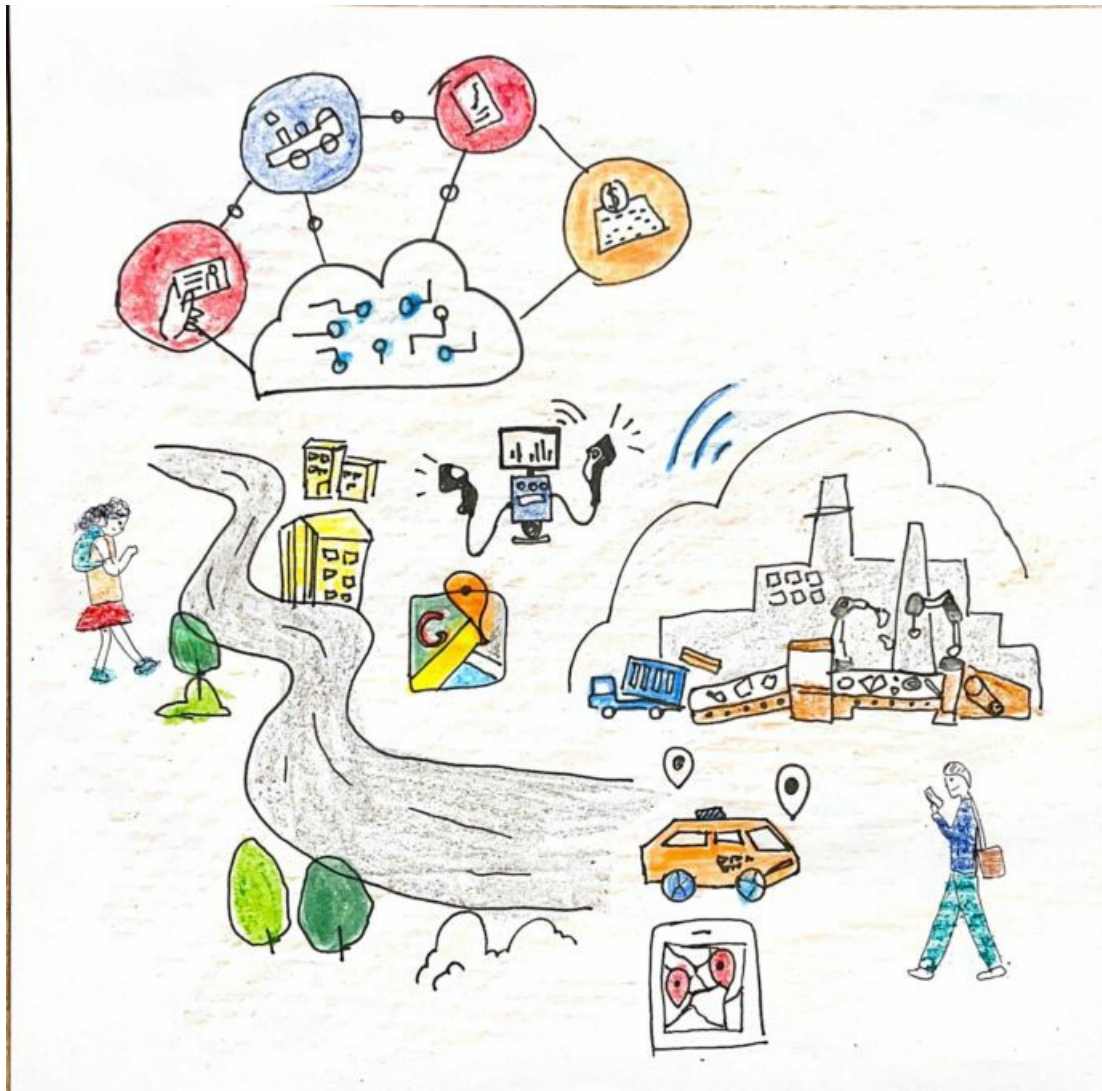
Talking about care in this regard, it becomes particularly problematic when digital platforms take on infrastructural roles in care and health—domains that depend on continuity, maintenance, and ethical politics (de La Bellacasa, 2017). When platforms with models mediate access to healthcare, welfare, mental health support, or caregiving—through telemedicine systems, health data platforms, insurance portals, or care-matching apps—they begin to function as life-sustaining infrastructures, roles that become even more critical, and more problematic, when many of these platforms operate through tech-entrepreneurial models. Yet platform systems remain fundamentally conditional: access depends on connectivity, digital literacy, devices, data regimes, and compliance with platform rules that can change without notice. Breakdowns—whether technical, regulatory, or political, or even a venture capitalist decision made overnight—do not merely disrupt convenience but directly endanger wellbeing.

At the same time, care infrastructures themselves used to rely on public or community maintenance, relational labour, and collective responsibility (Tronto, 2020). The increasing delegation of care and health matters to digital platforms can be understood as a response to the disappearing “modern infrastructural ideal” (Marvin, 2001), and, as stated by Plantin et al. (2016), platforms rise when infrastructures splinter. This reproduces platform dependency, wherein platforms assume infrastructural roles, while obligations around accountability, maintenance, and durability remain vague.

Replicability

The urban infrastructural role of digital platforms can also be challenged because they are vulnerable to replicability (Graham, 2020). Unlike infrastructures that are durable (though, of course, vulnerable to natural disasters or armed conflict), spatially embedded, and difficult to substitute, platforms rely on standardised and portable socio-technical arrangements that can be rapidly copied, replaced, or bypassed (Plantin et al. 2018; Srnicek, 2017). Uber, for instance, can be replaced by Lyft almost overnight, not because urban mobility infrastructures suddenly change, but because the platform merely overlays existing material systems—roads, vehicles, labour, and payment rails—with a standardised layer of coordination. Such ease of substitution challenges the urban infrastructural role of platforms, allocating them rather than as parasitic and provisional mediators of urban life.

To sum up, despite the presence of some valuable but scattered literature, particularly within urban studies, there remains limited scholarship examining digital platforms from the perspective of infrastructure but within urban processes, especially with regard to their spatial, temporal, and socio-political dimensions. Continuing this debate, we therefore invited papers that focus on the socio-spatial coordination capacities of digital platforms as emerging modes of urban infrastructure across different urban contexts.



The Contributions

The five papers in this issue span diverse domains, geographies, and disciplinary orientations to advance the debate around the infrastructural capacities of digital platforms. Interrogating platforms that mediate housing, care, local surveillance, research, and ordinary speculation, the papers bring insights into questions of access, embedded interests, and governance.

Susan Campbell interrogates ‘landlord technologies’ through the case of ‘virtual doormen’ at Atlantic Plaza Towers in Brooklyn, New York. Campbell shows how through framing biometric access as necessary urban infrastructure, surveillance platforms operate as instruments of racialized dispossession. Facial recognition systems, echoing longer genealogies of racial control from the “Black Codes” (Taylor, 2016) to CompStat, reconfigure domestic space into a site of carceral monitoring. Moving around, lingering, gathering, visiting can soon be suspect. Highlighting the role of private interests, Campbell shows how security infrastructure in fact facilitates data extraction and accelerates eviction and gentrification, disproportionately targeting Black tenants. Campbell thus situates platform infrastructures within racial capitalism, foregrounding their materialisation into infrastructures of carcerality.

While Campbell reveals infrastructural control, Masha Hupalo and Henrika Kangas shift our gaze towards infrastructural valuation, shaping ownership and speculation in urban housing. Hupalo's analysis of U.S. proptech shows how platforms such as Zillow translate the home into an assemblage of geo-located data points and algorithmic valuations through dynamic filtering, virtual tours, and return-on-investment calculators. Emerging platforms allow fractional ownership of properties powered by AI-based valuation services, rendering homes as quantifiable, optimizable, and tradable. As such, platforms present speculative finance in housing as readily legible and navigable. Transforming real estate into a data-driven and algorithmically-organised system, this opens up newer avenues of value generation for big investors, corporations as well as platforms themselves.

Kangas takes us to Sweden's housing queue system and reveals a parallel transformation. Historically grounded in welfare-state ideals of fairness, the housing queue, a non-monetary housing/rental allocation mechanism, becomes commodified through digital queue-management services. Privately operated platforms such as Hyreslätt, Dibz, and HomeQ promise to declutter the queue system—a formerly universal mechanism governed by municipalities and individual homeowners—by creating a parallel infrastructure based on subscription models and fee-based administration. Kangas's work contributes to ongoing debates on the capacity of digital platforms to *hack* formal urban processes. In the Swedish housing system, for example, queueing apps function as arrival infrastructures, enabling “Internationals” (Aaron, 2024) to navigate and negotiate otherwise rigid processes of residence. Queue time thus becomes an exchangeable value, privileging those able to pay for visibility and administrative leverage. Both Hupalo and Kangas present real estate platforms as a new layer of housing infrastructure, one that overlays existing systems with market-based mechanisms of coordination, efficiency and value extraction.

Zongtian Guo extends this infrastructural lens to healthcare in Guangzhou, China. Guo argues that in the ‘smart healthcare’ regime, diagnostics, health QR codes, and citizen-facing apps function not simply as service tools but as socio-technical infrastructures. As such, they condition entry, movement, and temporal rhythms within hospitals. Access to care thus increasingly presupposes digital compliance. Mapping shifts in spatial, temporal, and governance-related aspects of digital platforms, Guo shows how uneven access, disciplining of labour, and state oversight are embedded in the logic of platformised care. Positioning platforms as contested infrastructures that organise urban life, the paper also raises pertinent questions regarding the usage of granular health and mobility data as instruments of governance.

Against the predominant scholarship on platforms centred around corporate capture, Tim Fraske and Leila Javanmardi underscore the potentials of urban digital platforms (UDPs) in functioning as infrastructure, specifically as knowledge and collaboration infrastructures in planning practice. By drawing on the conceptual approach of real-world labs, they show how UDPs organise knowledge, participation, and governance across different temporal and institutional scales, from municipalities, academic institutions, and civic actors. Through this discussion, the paper probes the conditions under which

platforms can take on infrastructural roles, practice accountability, and be built with participatory insight, knowledge continuity, and epistemic inclusivity.

Taken together, the papers in this special issue advance three interlinked propositions in response to the question posed at the outset. First, digital platforms increasingly condition (not just mediate) urban access to housing, mobility, healthcare, and participation. Second, they emerge as and create new sites of value extraction through commodification, datafication, dispossession, and algorithmic management. And third, they embed specific governance as well as epistemic logics of carcerality, financialisation, technocracy, and market-based efficiency within everyday urban practices. Framing digital platforms as contested socio-technical formations, the papers demonstrate that their ontology as infrastructure is dubious.

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